

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

CLAIMS LISTING (all of pending claims 1-58)

1. (*Currently Amended*) A method of depositing silicon dioxide into trenches defined in a semiconductor substrate, where at least two of the trenches are of different aspect ratios, said depositing method comprising:

- (a) using oxygen and silane gases to reactively form silicon dioxide for deposition into said different trenches of the substrate;
- (b) using ions to sputter etch a portion of the formed silicon dioxide during the deposition so as to fill the trenches with the formed silicon dioxide without creating voids of substantial size during said filling of said different trenches; and
- (c) controlling the etch and the deposition of the silicon dioxide such that a nonzero etch to deposition ratio of about 0.07 or less is established during the filling of said different trenches.

2. (*Original*) The method of Claim 1 further comprising controlling the deposition and the etch such that the etch to deposition ratio is 0.025 or less.

3. (*Original*) The method of Claim 1 further comprising using an oxygen to silane ratio of 1.3 or less.

4. (*Original*) The method of claim 1 further comprising using a total gas flow of the oxygen, the silane, and an inert gas of 625 standard cubic centimeters per minute or less.

5. (*Original*) The method of Claim 1 further comprising using a total gas flow of the oxygen, the silane, and an inert gas of 500 standard cubic centimeters per minute or less.

6. (*Original*) The method of Claim 1 further comprising using a high frequency bias signal power of 2000 watts or less.

7. (Original) The method of Claim 1 further comprising using a high frequency bias signal power of 1500 watts or less.

8. (Original) The method of Claim 1 further comprising the act of doping the silicon dioxide during deposition.

9. (Original) The method of Claim 1 further comprising the act of depositing the silicon dioxide over an electrically conductive layer used as an interconnect.

10. (Original) The method of Claim 9, wherein the electrically conductive layer is metal.

11. *(Previously presented)* A method of depositing silicon dioxide over a semiconductor substrate, comprising:

using oxygen and silane gases to deposit silicon dioxide over the substrate;  
using ions to etch a portion of the deposited silicon dioxide during the deposition;  
controlling the etch and the deposition of the silicon dioxide such that an etch to deposition ratio is 0.07 or less

depositing the silicon dioxide over a layer of silicon nitride, the silicon nitride being

formed over a layer of polycrystalline silicon;

polishing the silicon dioxide to expose a top surface of the silicon nitride; and

etching the silicon dioxide such that a top surface of the etched silicon dioxide is

below a top surface of the layer of polycrystalline silicon.

12. *(Currently Amended)* An integrated circuit structure comprising silicon dioxide filling at least two trenches of differing widths, where the trench-filling silicon dioxide of said at least two trenches is the product of a method comprising:

(a) using oxygen and silane gases to reactively form the silicon dioxide;

(b) using ions to etch a portion of the formed silicon dioxide; and

(c) controlling the etch and the deposition of the silicon dioxide such that a nonzero

etch to deposition ratio of about 0.07 or less is established during the filling of said at least two trenches of differing widths, where said filling does not create voids of substantial size in said two trenches of differing widths.